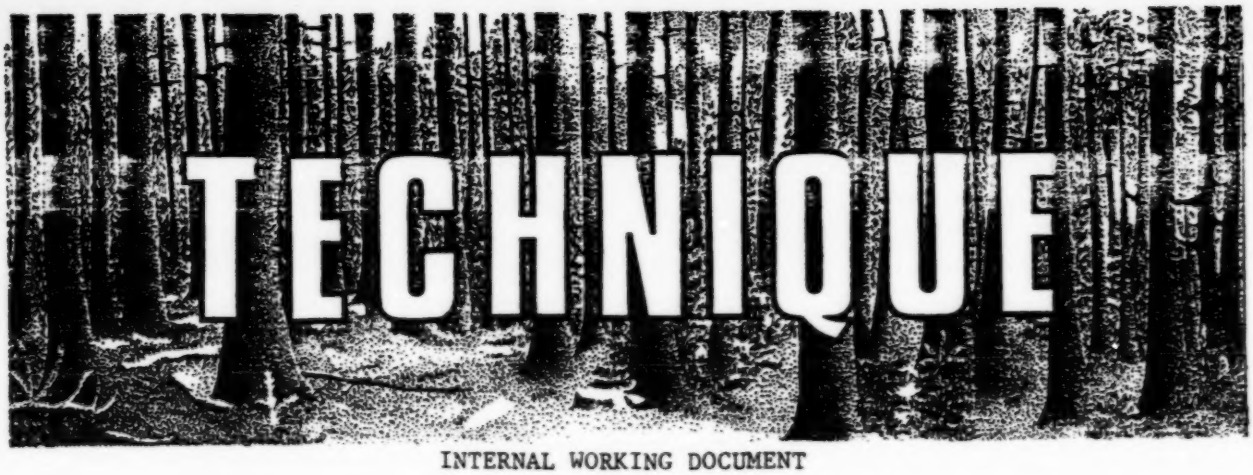

INTERNAL WORKING DOCUMENT

Comparison of Styroblock and Paper Pot Plantations

INTRODUCTION

New Brunswick has a major tree planting program that relies heavily on container stock. Since 1975 the vast majority of the containers have been 408 paper pots, however a few plug type containers have been used. There is a plantation assessment and monitoring program that surveys selected plantations at the time of planting and periodically thereafter. This assessment program indicated that black spruce from plug containers, specifically styroblock 4, was performing better than black spruce from paper pot containers. Subsequently more intensive sampling was initiated.

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Department of Natural Resources
Timber Management Branch
July 1985

METHOD

To compare the performance of the two stock types styroblock plantations were matched with paper pot plantations planted in the same area at the same time. In each plantation fifty $5m^2$ plots were established at uniform intervals along lines across the plantation. For each plot the number of planted trees and the height of the tallest planted tree was recorded. When a plot did not have planted trees the height of the nearest planted tree outside the plot was measured.

Nine black spruce styroblock plantations were established between 1978 and 1980 and all were checked during the summer of 1984 for inclusion in the comparison measurements. Two were rejected: one because of heavy competition and severe browse damage; and the other because styroblock and paper pots were planted together in an area that had a lot of natural black spruce and it was hard to distinguish between the three stock types.

One jack pine styroblock plantation was established in 1977 and measured in the fall of 1985.

RESULTS AND DISCUSSION

Table 1 summarizes the results. Black spruce trees in styroblock plantations were 17% taller than trees in comparable paper pot plantations. This is a significant difference. The percent difference in growth is similar for the youngest and the oldest plantations which suggests the styroblock stock is continuing to grow faster than the paper pot stock for at least six years.

For black spruce the companion plantations are similar with respect to stocking and density so there is no indication of a difference in survival between the stock types. As measured by the operational plantation assessment program there was no significant difference in the heights of spruces of the two stock types at planting.

Eight years after planting jack pine in the styroblock plantation were taller than jack pine in the paper pot plantation but the difference was not significant and the jack pine styroblock were taller when they were planted than the paper pots. The jack pine plantations had similar stocking and density eight years after planting so there is no indication of a difference in survival between the stock types.

CONCLUSION

There was no indication of a difference in performance of jack pine in styroblock or paper pot plantations, however, black spruce in styroblock plantations grew faster than black spruce in paper pot plantations. Monitoring the differences in height growth should be continued. If the styroblock stock only grows faster during the first few years after planting the difference at rotation age may not be significant. If however, the styroblock stock continues to grow more than the paper pot stock the difference will be highly significant at rotation age and should influence the choice of container types used.

Table 1. Comparison of styroblock 4 and 408 paper pot plantations. The styroblock plantation is listed followed by a paper pot plantation planted in the same area at the same time. Spruce were measured in 1984 and pine in 1985.

Species	Stock Type	File No. & Year Planted	Height (cm)	Stocking (%)	Density (trees/ha)	Height When Planted (cm)
Black Spruce	Styroblock	TP-38-78	160	64	1 440	14
	Paper Pot	TP-37-78	144	48	1 220	17
	Styroblock	TP-29-78	113	76	1 960	20
	Paper Pot	TP-28-78	89	72	2 320	13
	Styroblock	TP-56-79	116	46	1 280	not measured
	Paper Pot	TP-57-79	109	48	1 080	14
	Styroblock	TP-57-79	122	44	1 040	13
	Paper Pot	TP-57-79	109	48	1 080	14
	Styroblock	TP-37-80	47	48	1 720	17
	Paper Pot	TP-36-80	42	58	1 960	13
	Styroblock	TP-32-80	65	54	1 400	12
	Paper Pot	TP-33-80	58	46	1 080	15
	Styroblock	TP-54-80	128	70	1 640	13
	Paper Pot	TP-54-80	91	54	1 480	9
Jack Pine	Styroblock	Tp-30-77	270	68	1 640	8
	Paper Pot	TP-29-77	263	64	1 720	3